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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. The amendment filed on October 27, 2008 has been entered.

Claims 1, 3, 5, 10, 12, 13, 15, 18, 21 - 24, 37 - 44, 46, 47, 49 - 54 are pending.

Claims 1, 3, 5, 10, 12, 13, 18, 21 - 24, 37 - 50 are rejected.

Claims 15, 51, 52 and 54 are objected to as being dependent upon a rejected base claim.

Claim 53 is allowed.

The 112 1st paragraph rejections of claims 37 and 44 have been withdrawn in view of the amendment to the claims.

The 112 2nd paragraph rejections of claims 5 and 40 have been withdrawn in view of the amendment to the claims.

Claim Rejections - 35 USC § 112 1st paragraph

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5, 38, 40 and 47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 38 and 47, the claimed limitation "the topology of the scatternet *reverts from the second network topology back to the first network topology*" was not described in the original specification.

Regarding claims 5 and 40, the claimed limitations "the first network topology of the scatternet is defined at initiation of the scatternet", "the first network topology ... is not subsequently substantially redefined", "the new temporary direct radio communications link augments the defined topology of the scatternet by the addition of an extra temporarily link to the set of links but does not otherwise add or remove links from the set of links" were not described in the original specification. The original specification never explicitly describes the direct radio communication link does not redefine the network topology.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 5, 10, 12, 13, 15, 18, 22 - 24, 37 - 44, 46, 47, 49 - 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson et al. (US 6,751,200) in view of Isumi (US 5,815,816).

(1) with regard to claims 1, 22 and 23:

Larsson et al. discloses a system comprising: receiving a packet at a first device in a first piconet of a scatternet comprising multiple piconets (e.g. node M8 in piconet 9 in Fig. 2; a scatternet comprising piconets 1 – 7 and 9 – 12 has a network topology which connects all the nodes of the piconets; column 5, lines 44 - 50), wherein the packet is for delivery to a destination device in a second piconet of the scatternet and wherein the scatternet has a first network topology including a first route, wherein the first route extends between the first device and the destination device and includes at least one further device (any node shown in Fig. 2 that is in a piconet that is not occupied by the first device can be the destination device, for example, a slave node in piconet 7; the scatternet before new piconets are created has the first topology; node M8 is connected to the slave node of piconet 7 via piconet 9, piconet 10, piconet 4, piconet 5 and piconet 7); determining whether it is possible to modify the first network topology by creating a direct radio communications link, between the first device and the destination device, that adds a short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology including the first route between the first device and the destination device and also a second route formed by the short-circuit, wherein the second route is different from the first route and extends directly between the first device and the destination device without including another device (e.g. see Fig. 7 step 720 i.e. determining whether it is possible to route packets through a new link or short-circuit; establishing a new link changes the topology of the network; the scatternet after new piconets are created has the second topology); if it is not possible to add the short-

circuit, forwarding the packet within the first network topology of the scatternet (NO branch out of step 720 i.e. new link is not possible, send packet through existing piconet(s)); and if it is possible to add the short-circuit: creating a new direct radio communications link between a the first device and the destination device that adds the short-circuit to the first network topology and converts the topology of the scatternet from the first network topology to a second, different, network topology (YES branch out of step 720 i.e. if new link is possible, send packets through the new link); and transmitting the packet via the new direct radio communications link (e.g. a link created by piconet 8 which connects the two node as shown on Fig. 2 creates a new link or a short-circuit between piconet 9 and 7) of the second network topology (column 6, lines 48 – 63).

Larsson et al. does not disclose the direct radio communications link is temporary; and the topology of the scatternet is not permanently changed.

Isumi teaches a direct radio communications link is temporarily created and is released after a period of time (column 13, line 64 – column 14, line 3).

It would have been desirable to temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection because it would make system resource utilization more efficient. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention modify the system of Larsson et al. to include the features of the direct radio communications link is temporary; and the topology of the scatternet is not permanently changed as shown in Isumi.

(2) with regard to claims 3 and 39:

Larsson et al. discloses all of the subject matter as discussed in the rejection of claim 1 and further discloses adds a third piconet that connects the first piconet and the second piconet to the first network topology to create the second network topology (column 5, lines 1 – 10; column 6, lines 16 – 20; in the case where the first device is node M8 of piconet 9, and the destination node is a slave of piconet 7, a direct link between the slave of piconet 9 and the slave of piconet 7 can be established by establishing a third piconet, piconet 8, as shown in Fig. 2 while the existing communication links within piconet 9 are maintained).

(3) with regard to claims 5 and 40:

Larsson et al. discloses that the first network topology of the scatternet is defined at initiation of the scatternet as a set of links between devices (topology of the scatternet before new piconets are created) and is not subsequently redefined except for devices leaving and joining the scatternet and wherein creating the new direct radio communications link augments the defined topology of the scatternet by the addition of an extra link to the set of links but does not otherwise add or remove links from the set of links (adding a new piconet changes the topology of the scatternet).

(4) with regard to claims 10 and 41:

Larsson et al. discloses the packet comprises an address of the destination device (inherent because any packet destined to a destination must contain the address information of the destination in order to know where to deliver the packet) and wherein determining whether it is possible to modify the first network topology by adding a short-

circuit uses the identity of the destination device (column 7, lines 21 – 25; because it has to determine if the destination can be reached at all, the identify of the destination must be used); and determining if the destination device is within radio communication range of the first device (column 2, lines 48 – 51; column 7, lines 26 – 30).

(5) with regard to claims 12 and 42:

Larsson et al. further discloses that the first device maintains a list of devices within radio communication range (column 2, lines 65 – 68, i.e. a node maintaining radio communications with its neighboring devices).

(6) with regard to claims 13 and 43:

Larsson et al. further discloses the list comprises, for each device within communication range, an address and a clock offset (column 2, lines 65 – 68; BD_ADDR is the address and the internal clock value is the clock offset).

(8) with regard to claim 24:

Larsson et al. discloses adding an address of the first device to the packet before forwarding it (column 3, line 52; having IP over the Bluetooth link layer would require Bluetooth devices to add their addresses to the packets they send).

(9) with regard to claims 37 and 44:

Larsson et al. discloses the packet is transmitted via the new direct radio communications link of the second network topology to the destination device (725, Fig. 7) using a frequency dependent upon a frequency hopping sequence determined by the address of the destination device and with a phase dependent upon the clock offset of the destination device (inherent to communications based on Bluetooth).

(1) with regard to claims 18, 46 and 49:

Larsson et al. discloses all of the subject matter as discussed above but fails to disclose that the direct radio communications link is temporary; and the direct radio communications link is released after a predetermined period of inactivity.

Isumi teaches that temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection (column 13, line 64 – column 14, line 3).

It would have been desirable to temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection because it would make system resource utilization more efficient. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Isumi in the system of Larsson et al.

(2) with regard to claims 38, 47 and 50:

Larsson et al. discloses transmitting the packet over the direct radio communication link as discussed above.

Larsson et al. does not disclose releasing the direct radio communication link after the packet has been transmitted and reverting the topology of the scatternet from the second network topology to the first network topology.

Isumi teaches that temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection (column 13, line 64 – column 14, line 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Larsson et al. so that the direct radio communications link is released when no packets need to be transmitted to revert the topology of the network in order to make system resource utilization more efficient.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson et al. (US 6,751,200) in view of Langberg et al. (US 5,852,630).

(1) with regard to claim 21:

Larsson et al. discloses all of the subject matter as discussed in the rejection of claim 1. Larsson et al. however does not teach using a memory embodying a computer program for performing the method of claim 1.

Langberg et al. teaches a method for a transceiver warm start activation procedure can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can contain or store a computer program for use by or in connection with a computer-related system or method (column 3, lines 51-65). Using a computer readable medium with program instruction code would be desirable because it would perform the same function of using hardware but offer the advantage of less expense, adaptability and flexibility. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the limitation as taught by Langberg et al. into the system of Larsson et al. so as to reduce cost and improve the adaptability and flexibility of the logic simulation.

Allowable Subject Matter

7. Claims 15, 51, 52 and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 53 is allowed.

Response to Arguments

9. Regarding the 112 1st paragraph rejections of claims 38 and 47, Applicant responded that support for disclosure of rejected limitations can be found on page 7, lines 24-25 and Fig. 1 - 2 of the original specification (Remarks, page 11). Examiner respectfully disagrees. While the cited paragraph by Applicant describes the creation of a temporary radio communication link, it does not describe reverting network topologies. Similarly, regarding claims 5 and 40, the specification does not describe a second network topology and it is unknown as to whether the direct radio communication link would redefine the network topology.
10. Regarding the 102 rejection of claim 1, Applicant contends that Larsson does not disclose the feature that the packet is only forwarded within the first network topology of the scatternet if it is not possible to create a direct short-circuit (Remarks, page 12). Examiner respectfully disagrees. Claim 1 merely recites "if it is not possible to add the short-circuit, forwarding the packet within the first network topology of the scatternet".

Larsson teaches this feature, see Fig. 7, 720, where if it is determined route thorough net piconet(s) is not possible (NO branch), packets are sent over existing piconet(s) (715).

11. Regarding the Isumi reference, Applicant contends that there would be no reason to combine Isumi with Larsson (Remarks, page 13). Examiner respectfully disagrees. Isumi teaches temporarily creating a communication link and releasing such link when it is determined that the link has been inactive for a period of time. There would be a reason to modify Larsson to include this feature taught by Isumi because temporary allocation of network resource allows limited resource to be reused and thus make system more efficient.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BO HUI A. ZHU whose telephone number is (571)270-1086. The examiner can normally be reached on Mon-Thur 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BO HUI A ZHU/
Examiner, Art Unit 2419
December 31, 2008

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